

Claims

1. A method for producing trimellitic acid through liquid-phase oxidation of pseudocumene in an acetic acid solvent under a gas atmosphere containing molecular oxygen in the presence of a catalytic system containing at least one
5 selected from the group consisting of cobalt, manganese, zirconium and bromine, said oxidation of pseudocumene comprising:

a) conducting a first oxidation in the presence of an initial oxidizing catalytic system at a temperature from 120 to 200°C for a time from 5 to 20 min in an oxidizing reactor, said initial oxidizing catalytic system comprising at least three
10 compounds selected from the group consisting of cobalt compound, manganese compound, zirconium compound and bromine compound;

b) conducting a second oxidation in situ at a temperature from 160 to 220°C for a time from 30 to 60 min under addition of an additional catalytic system, said additional catalytic system comprising at least two compounds selected from the
15 group consisting of cobalt compound, manganese compound, zirconium compound, and bromine compound; and

c) completing the oxidation of pseudocumene into trimellitic acid at a temperature from 180 to 230°C for a time from 5 to 20 min without the addition of catalysts into the reactor,

wherein a pressure is adjusted in the range from 100 to 450 psig over the steps a), b) and c).

2. The method as set forth in claim 1, wherein an amount of cobalt is 0.1 to 0.4 wt%, an amount of manganese is 0.01 to 0.1 wt%, an amount of zirconium is 0

to 0.01 wt%, and an amount of bromine is 0.01 to 0.1 wt% based on a weight of pseudocumene in the initial oxidizing catalytic system.

3. The method as set forth in claim 1, wherein an amount of cobalt is 0 to 0.2 wt%, an amount of manganese is 0.01 to 0.3 wt%, an amount of zirconium is 0 to 0.01 wt%, and an amount of bromine is 0.05 to 0.5 wt% based on a weight of pseudocumene in the additional catalytic system.

4. The method as set forth in claims 1, wherein the oxygen concentration in the gas discharged from the oxidizing reactor is maintained in the range of 2 to 8 volume %.

10 5. The method as set forth in claim 1, wherein a molar ratio of the pseudocumene to the acetic acid solvent is 1:2 to 1:12.

6. The method as set forth in claim 1, wherein the step c) is performed under the condition of higher temperature and pressure than the step b).

15 7. The method as set in claim 1, wherein the method is carried out in a discontinuous mode.